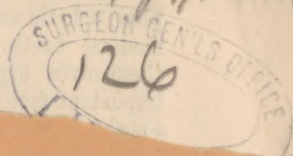


Month. Micr. J. Lond.



R.





*Cutting from: Month. Microsc. J., Lond  
1875, Liii.*



V.—*Note on the Diagnosis of Blood Stains.*

By Jos. G. RICHARDSON, M.D., Microscopist to the Pennsylvania  
Hospital, Philadelphia, U.S.A.

ONE or two points in my paper "On the Value of High Powers in the Diagnosis of Blood Stains"\* having been somewhat sharply, although courteously criticized in these pages by my friend Dr. J. J. Woodward, U. S. Army of Washington, D.C., I wish to add a few words in explanation.

Dr. Woodward states that he writes to point out that it is "never in the power of the microscopist to affirm truthfully on the strength of microscopical investigation, that a given stain is positively composed of human blood, and could not have been derived from any animal but man." With this proposition I fully agree, contending, however, that whilst it is literally true, it is *not the whole truth*, because, as may often happen in medico-legal practice, *when evidence other than microscopical* narrows down the conditions of the case to the question, Is this stain human blood or that of an ox, pig, or sheep? the microscopist can from fair specimens of blood spots as ordinarily produced, affirm truthfully that the "given stain is positively composed of human blood," should it really be so. This second statement I believe Dr. W. will admit, as an additional part of the truth, and if not I undertake to convince him (as I have some other candid doubters among my friends), by incontestable evidence.

Our real difference then is not mainly upon matters of fact, but on a matter of opinion, respecting the *just prominence* which should be given to the circumstance that "the blood-corpuscles of a few mammals approach so nearly in size to those of man as to render their distinction doubtful," a fact, be it observed, *which I thus in these words explicitly mention*, on p. 153 of my essay in this Journal for September, 1869,† of which my paper above referred to is avowedly a continuation.

Now, whilst I honour Dr. Woodward for the discharge of what

\* See the 'American Journal of the Medical Sciences,' July, 1874, and this Journal for September of the same year.

† And also 'Handbook of Medical Microscopy,' p. 288. Philadelphia. 1871.

he conscientiously believes to be his duty, it seems to me, with all due deference to his superior experience, that he has in the first place a little undervalued the caution and prudence of our numerous medical brethren, who possess microscopes without considering themselves experts, and second that he has overlooked a most important factor in the calculation which we both, perhaps equally, sought to make, of how to secure for humanity by our researches the maximum advantage with the minimum amount of injury. This factor I conceive to be the keen sharp-witted lawyer to be found not only in every city, but in every county town throughout English-speaking countries, who whilst studying *during* a trial my essay, if it were brought forward to support the baseless pretensions of an unqualified microscopist, claiming to distinguish human from dog's or monkey's blood, would infallibly discover, that not one syllable of its carefully worded statements could be construed into warranting such a groundless assumption.

Hence, trusting to this powerful and omnipresent element, for the protection of two or three innocent persons, who might possibly be in danger through my agency of conviction for manslaughter, I felt whilst writing both my first paper and its continuation, that should I more than indicate the animals which render our conclusions doubtful, my work would be rendered really prejudicial to the interests of society. Indeed it was, I think, fairly to be anticipated, that if I should emphasize and reiterate the fact that science alone could not detect the falsehood of a criminal's story, if he cunningly asserted that suspicious stains were made by the blood of a dog, not only would I frequently obstruct the course of justice, but some jealous critics would utterly condemn my investigations, and compare me to a locksmith winning a wide reputation among the "dangerous classes," by an essay most minutely teaching thieves *the truth*, in regard to the secrets of opening bank vaults and fireproof safes; or to a toxicologist publishing a treatise, setting forth *most faithfully* the method by which poisoners may best destroy their victims, with the least danger of detection in their crimes.

It should be remembered also, that in all cases a really innocent person, wrongly accused of murder on the ground of blood stains upon his clothing, &c., actually proceeding from that "constant" (yet rarely slaughtered) "companion of man," the dog; or from some of our unusual associates, such as seals, otters, guinea-pigs, &c., needs neither Dr. Woodward nor Dr. Richardson to prompt him to tell (and try to corroborate the assertion) when first arrested, the *true* origin of the suspicious blood spots. And if the story which he relates after legal consultation and advice is not *the truth*, I would enter my protest against that *pseudo* philanthropy, too fashionable at the present day, which shuts its ear to

the righteous appeal of our brother's blood, when, as in the days of Cain, it crieth unto us from the ground, and yet listens with a half maudlin sympathy to the pitiful tale of a guilty criminal appalled at the prospect of just punishment for his sin.

Such then were the arguments which influenced me to publish my researches in a guarded manner; but now, since Dr. Woodward has bravely taken all responsibility for harm that may ensue upon himself, I am glad, for the benefit of the *few* rash microscopists and dull-brained lawyers our countries produce, to state explicitly my full corroboration of the Doctor's assertions, and declare that as far as I am aware there is at present (1875) no method known to science for discriminating, microscopically or otherwise, the dried blood of a human being from that of a dog, monkey, rabbit, musk rat, elephant, lion, whale, seal, or in fact any animal whose corpuscles measure more than  $\frac{1}{4000}$  of an inch in diameter. Hence, therefore, until further discoveries are made, a microscopist's best efforts at revealing crime can only serve the cause of right and justice in those cases where the criminal's attorneys, in spite of being *forewarned*, and consequently *forearmed*, are unable to prepare or suborn testimony to show that one of the creatures just enumerated has been killed in such a way as to produce blood stains, which are likely to be confounded with those from the murdered victim. Of course, however, a *change in the prisoner's story*, so as to attribute the blood spots to a dog, monkey, &c., *after* consultation with shrewd lawyers for the defence, or scientific friends, as in the case mentioned below, *must have great weight with the jury*, and go far to *put them on their guard against the crafty trick* attempted upon their intelligence.

That I was led to avoid reiterating and emphasizing this failure of our science by no unfounded apprehension of the evil likely to arise from dinning such knowledge into the ears of rogues, is proved by the fact that after my testimony was delivered in the Lambee trial at Franklin, Venango Co., Pa., the prisoner's "keen, sharp-witted lawyer" brought two female witnesses into court who testified that on a certain occasion about the time of the murder, when the defendant's boots (on which were the suspected blood spots) were standing in the corner of a particular room, they were engaged in clipping the ears of a terrier dog, and just as they got one ear done the baby cried, and they were obliged to let go the dog, which ran round the apartment shaking its head, and thus sprinkled the boots with its blood. Further to substantiate this tale, a dog with one ear clipped was exhibited to the jury, and sworn to as the very one from which the blood was shed. Fortunately, however, it so happened that I had examined one or two spots upon the prisoner's pantaloons, finding them to be human blood in contradistinction to pheasant's blood, *as he first explained*

them to be; and since the contrivers of this dog story apparently forgot that the pantaloons were not standing up in the boots, and consequently had no chance to become sprinkled along with them, their ingenious theory failed to gain credence with the jury, who brought in a verdict of guilty of murder in the first degree.

I venture to predict that from Dr. Woodward's paper and this note to my own essays will spring, as from the dragon's teeth of ancient fable, a host of bloody dog tales to account for suspicious stains on the clothing, &c., of murderers, until even attorneys for the defence become themselves ashamed to put forward this worn-out plea.

Sometimes, as in a recent case wherein I was engaged,\* the large amount of blood might enable us to expose some ingenious falsehood, attributing the tell-tale spots to one of the smaller animals, as, for instance, the rat, mouse, rabbit, or even lapdog.

The other criticism of Dr. Woodward to which I wish to advert is his remark that he suspects I have underrated the amount of contraction which the dried and remoistened corpuscles undergo, estimated by Carl Schmidt at about 48 per cent. of their diameter. Numerous experiments made to settle this point lead me to remark that I stand ready to *prove* the greater accuracy of my measurements of the least deformed corpuscles examined by my method in the thin films of BLOOD STAINS, but not in masses of dried blood clot. When the blood forms a stratum of some thickness, its corpuscles during desiccation generally become crenated, and thereby diminish in diameter to two-thirds or less of their original size. It seems probable that some at least of the measurements of Carl Schmidt and others have been made upon red disks in this contracted state.

I wish to insist most emphatically that all my statements in regard to the diagnosis of blood stains are applicable to "*stains*" only, and not to masses of dried blood clot.

In this conviction I reply to the chief point made by my critic in the London 'Medical Record,' Sept. 9, 1874, that bearing in mind this possibility of the disks diminishing in size by crenation, I would—in the extraordinary and, I believe, as yet unreported case where a man might be convicted if a given stain were pronounced horse's blood, and acquitted if it were human blood instead of the contrary—positively decline to say it was the blood of a horse, even if the corpuscles ranged from  $\frac{1}{4000}$  to  $\frac{1}{5000}$  of an inch in diameter.

Two questions very properly suggested or urged by the learned counsel in the Lindsay case above referred to, during cross-

\* Trial of Owen Lindsay for the murder of F. A. Colvin. See Syracuse 'Daily Standard,' Jan. 30, 1875.

examination, I have made the subjects of repeated experiment, the results of which may be useful to future observers.

First, as to the action of freezing upon the red disks, I find that drops of blood from my finger exposed upon pine wood for twelve hours to a temperature of about 15° F. so as to be frozen into solid lumps, and then thawed and dried in a moderately warm room, present their corpuscles as distinct and uninjured as do ordinary blood stains.

Second, similar drops of blood dried in about fifteen minutes by mere exposure in my office upon a hemlock chip, and also upon a fragment of oak bark, such as is used for tanning leather, likewise exhibited the corpuscles with exactly the same characters, usually seen in those from common blood stains on paper or muslin; and I therefore conclude that the amount of tannic acid taken up by the serum from the bark, and *a fortiori* from any kind of wood, under analogous circumstances is insufficient to alter these red blood disks.









